

In the Claims:

Please cancel claims 1-12.

- 1 13. An integrated optical device formed in accordance with a process, comprising the
2 steps 2 of:
 - 3 providing a glass substrate having a base index of refraction;
 - 4 providing a UV light beam;
 - 5 focusing said beam on a portion of said glass substrate in order to form a region of 6
6 increased refraction; and
 - 7 scanning an elongated region of said glass substrate with said beam in order to define a first
8 elongated optical channel having an increased index of refraction relative to said base index of
9 refraction, said first optical channel for guiding light transmitted there along.
- 1 14. The integrated optical device as recited in claim 13, formed in accordance with a process,
2 including the step of:
 - 3 forming a plurality of second elongated optical channels in said glass substrate, wherein
4 said first optical channel is operative for transmitting light to said plurality of second elongated
5 optical channels such that said transmitted light is divided among said plurality of second
6 elongated optical channels, thereby forming an optical beamsplitter.
- 1 15. The integrated optical device as recited in claim 14, formed in accordance with a process,
2 including the step of:
 - 3 forming at least one thermo-optic switch across at least one of said second elongated optical
4 channels so as to form an optical switching device for switching light transmitted through said
5 first optical channel to a selected one of said second optical channels.
- 1 16. The integrated optical device of claim 13, wherein said first optical channel receives a multi-
2 wavelength light beam, formed in accordance with a process, including the steps of:
 - 3 providing a beam splitter for splitting said multi-wavelength light beam into a plurality of
4 multi-wavelength light beams;

5 forming a plurality of second elongated optical channels for guiding said plurality of
6 multi-wavelength light beams, wherein each said second elongated optical channel guides a
7 selected one of said plurality of multi-wavelength light beams, wherein each said second
8 elongated optical channel has a different length such that light transmitted there upon exits
9 each said second optical channel with a different phase shift; and

10 providing a lens region for refocusing said plurality of phase shifted multi-wavelength
11 light beams into a plurality of narrow wavelength light beams of differing wavelengths,
12 thereby forming an optical wavelength demultiplexer.

1 17. The integrated optical device of claim 13, wherein said glass substrate is doped with
2 dopants chosen from the group consisting essentially of Germanium, tin and Boron.

1 18. The integrated optical device of claim 13, formed in accordance with a process, including
2 the step of:

3 encasing at least a portion of said elongated optical channel in a protective material.

1 19. The integrated optical device of claim 13, wherein said protective material is glass.

1 20. The integrated optical device of claim 13, wherein said protective material is doped glass.